

# Plots and Plans

## Objective:

Students will collect data on a 1/10 acre plot and use their findings to make forest management recommendations.

## Standards of Learning:

Science 6.1, 6.9, LS.1, LS.5, LS.12, BIO.1, BIO.9

## Materials:

Each team of 4-5 students will need

- ♦ Clipboard with data sheet and pencil
- ♦ 37.2 feet of yarn (red) attached to a stake
- ♦ Set of marker flags
- ♦ Flash ID guides

## Background:

Foresters and other scientists often need to make detailed observations of a forest. For example, they might need to understand a forest's ecology in order to learn about wildlife that lives there, or they might study the forest's overall health in order to make management decisions about that forest. If a forest is large, it may be impossible to make observations of the entire forest. Instead, scientists can observe smaller plots to create a "snapshot" of the forest. Averaging data over a number of 1/10 acre plots can give foresters a good idea of the conditions in the larger forest.

## In the Forest - Data Collection:

Choose an area along one of the forest trails that appears typical of the larger forest around you. Give each team of 4-5 students a set of materials, and ask them to choose a center for their 1/10 acre plot. Teams should spread out so that their plots do not overlap. (Note: Although not ideal protocol for data collection, safety may dictate that plots be located in sight of each other, unless an adult is available to accompany each group.)

To mark a plot, unroll the yarn and place the stake at the center of the plot. One student will walk with the other end of the yarn until it is taut, then begin to walk in a circle around the center. Another student follows the walker, placing flags periodically to mark the boundaries of the circular plot. Once plots are marked, students should begin analyzing and filling in the data sheet for their plot. When finished, teams should collect the flags and stake, and roll up the yarn.

### **Back in the Classroom - Data Analysis and Recommendations:**

Discuss the data gathered by the teams. You may wish to have the class create charts of some or all of the data. Discuss the following questions with students:

- How could a scientist use the type of information you gathered from your plot?
- Does it matter where in the forest plots are located? How far apart should plots be located? Explain your answers.
- How well does your plot represent the forest as a whole? How many plots would you need to sample to get a good representation of the whole forest?

In their teams, students will now make management recommendations for the State Forest. They may wish to consider some of the data they collected, if it seems to suggest management strategies. Each team should complete the worksheet and be prepared to discuss their recommendations with the class.

**1/10 Acre Forest Plot Study:\_\_\_\_\_State Forest**

**Location of plot (describe area of forest or give GPS coordinates if available):**

**Date:**

**Weather:**

**Slope (check one):**      ☐ Flat      ☐ Gentle      ☐ Steep

**Describe the soil (color, moisture, texture):**

**Canopy (check one):**    ☐ mostly open (mostly sky when you look up)  
                                  ☐ about half open (about half sky, half trees when you look up)  
                                  ☐ mostly closed (mostly branches/leaves when you look up)

## Trees:

[illegible]

**Other plants:**

[illegible]

**Signs of wildlife (birds, mammals, reptiles, amphibians, invertebrates):**

Sign or animal (describe if unknown)	Number of occurrences

**Signs of tree disease or disturbance (include damaged trees, signs of damaging insects, signs of diseases or other forest/tree stressors)**

Sign or damaging organism (describe if unknown)	Number of trees affected

# Management Planning for \_\_\_\_\_ State Forest

This State Forest could be managed for one or more of the following natural resource goals:

- timber and other forest products
- wildlife habitat
- recreational use by people
- protection of air and/or water quality
- scenic beauty

1) Which of these uses would be most costly to put in place? Why?

2) Which of these uses would be likely to change the ecosystem the most? Would the changes be permanent or temporary?

3) Which uses would be compatible (work well) with each other?

4) Which use(s) does your group recommend? Give practical reasons for your answers.

5) What are some challenges in managing this forest for the goals you chose?

6) Who should decide how public lands, like this State Forest, are managed?